

Committee on Resources, Subcommittee on Water & Power

<http://resourcescommittee.house.gov/water> - - Rep. Ken Calvert, Chairman
U.S. House of Representatives, Washington, D.C. 20515-6204 - - (202) 225-8331

Agenda / Witness List

1324 Longworth H.O.B.
Thursday, April 26, 2001
2:00 p.m.

AGENDA

Oversight Hearing on
Maximizing Power Generation at Federal Facilities

WITNESSES

Panel I

- Mr. J. William McDonald , Acting Commissioner, Bureau of Reclamation
Accompanied by:
Mr. Mike Hacskeylo, Administrator of Western Area Power Administration
Mr. Jeff Stier, Vice President for National Relations, Bonneville Power Administration

Panel II

- Mr. Michael McInnes, Sr. Vice President/Deputy General Manager, Tri-State Generation and Transmission Association, Inc.
- Mr. David Wegner, Board of Directors, Glen Canyon Institute
- Mr. Rick Johnson, Executive Director for Science, Southwest Rivers

Panel III

- Mr. James C. Feider, Electric Utility Director, City of Redding
- Ms. Aleka Scott, Transmission and Contracts Manager, Pacific Northwest Generating Cooperative
PDF 2 pages.
- Mr. Richard Erickson, Secretary/General Manager, East Columbia Basin Irrigation District

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Witness Statement

**Statement of J. William McDonald
Acting Commissioner, Bureau of Reclamation
Department of the Interior
before the
Subcommittee on Water and Power
Committee on Resources
U.S. House of Representatives
April 26, 2001**

I am Bill McDonald, Regional Director for the Bureau of Reclamation's (Reclamation) Pacific Northwest Region located in Boise, Idaho, and am currently serving as Acting Commissioner. I appreciate the opportunity to discuss Reclamation's role in regulating the flow of water on key rivers and the impact on output of hydroelectric plants that are operated by Reclamation.

Before I discuss Reclamation's current activities as they relate to the generation of hydroelectric power, I would like to give the Subcommittee some background on Reclamation's hydroelectric power activities. This should provide important context as we discuss the current situation and Reclamation's role and activities.

Background

The Bureau of Reclamation is the nation's second largest producer of hydroelectric power. It ranks as the 10th largest power producer in the United States with 58 hydroelectric powerplants, 194 generating units in operation and an installed capacity of 14,744 megawatts (MW). In addition, Reclamation has a 547 MW share of the installed capacity of the coal-fired Navajo Steam Powerplant. The power produced at such projects that is available for commercial sale is marketed by the Western Area Power Administration (Western) and the Bonneville Power Administration (Bonneville).

Reclamation powerplants annually generate about 49 billion kilowatt hours (kWh) of hydroelectric energy--enough to meet the annual residential needs of over 14 million people or the electrical energy equivalent of over 80 million barrels of crude oil. Currently Reclamation's Central Valley Project accounts for about 4 percent of California's installed capacity in state. Westwide, Reclamation helps to maintain the stability and reliability of the overall power grid through the Western Systems Coordinating Council (WSCC) - a voluntary system reliability organization in which Reclamation, the California utilities and 13 other western states participate.

Over the past 25 years, Reclamation has done a great deal to increase the generation capacity of its hydroelectric facilities throughout the west. In 1976, Reclamation had 50 powerplants with a total capacity of 9,111 MW. Today, Reclamation's 58 powerplants have an installed capacity of 14,744 MW for a 62 percent increase. It is important to note that Reclamation's aggressive uprating and rewind program at existing power plants accounts for more than 1,783 MW of that increase, which represents 12 percent of Reclamation's total generation capacity.

Legal and Operational Issues: While Reclamation's installed nameplate capacity is significant, there are a number of legal and operational factors that limit energy generation.

1) Power is Secondary Purpose: Reclamation's hydroelectric power facilities are part of specifically authorized multipurpose water projects which provide benefits such as irrigation, municipal and industrial water supply, flood control, fish and wildlife protection and recreation. Power is, by statute for most projects, a secondary project function to delivery of irrigation and municipal and industrial water supplies. This means that water deliveries, pursuant to contracts, take precedence over electric power generation. Further, many projects are required to schedule water deliveries in accordance with interstate apportionment decrees and compacts and with international treaties. Therefore, water may not be available to generate power, as it may be committed to a primary project function such as flood control, or agricultural or municipal and industrial deliveries. In some cases, Reclamation may be required to release more water from its reservoirs than can be accommodated using only the power plant turbines.

2) Only Surplus Power is Marketed: Under Reclamation law, the first priority for the use of power generated by Reclamation's projects is to meet the needs of that project. This includes power for pumping water for delivery to our water users. On a Reclamation-wide basis, about 5 to 7 percent of the power we generate each year is used for project purposes. Within parts of the Central Valley Project (CVP) in California, however, there are times of the year - particularly during the irrigation season - when our generation does not even produce enough power to meet the project's pumping needs. In response, Western must buy power to serve irrigation needs on the spot market just like any other power user.

When there is power surplus to a project's needs, it is provided to Western or to Bonneville in the Pacific Northwest. Reclamation manages only the generation of power at its facilities. These Federal agencies in turn market this power to customers who are primarily preference customers, such as municipal utilities, as required by statute. Portions of the revenues derived from such sales are used to repay their investment costs that are the responsibility of the irrigators but exceed their ability to repay.

3) Power is Already Committed by Contract: As the marketers for Reclamation's power, Bonneville and Western have entered into contracts with preference customers for all of the anticipated available generation. The only time that additional power may be available to non-contracted entities is when there is excess water in the system that can produce more power than is already obligated or expected. All power generated at Hoover Dam is committed even when there is excess water in the system. In a dry year, however, Western and Bonneville have to buy power from other sources to make up the difference in their existing contracts. In today's spot markets, those costs have increased as much as ten fold over the last year. In a normal or dry year, there is little or no power produced that is not already under contract through Western or Bonneville.

4) Transmission System Constraints: Map #1 attached to my testimony, shows a multitude of power facilities - albeit small ones - on the east side of the Continental divide. These facilities currently serve customers in the regions in which they are located. Map #2 shows that the Federal transmission system is not designed to move power from these units long distance to California. Also, within California, the capacity to move electricity, particularly from the south to the north, is limited. Thus, although Reclamation through Western, delivers power from Hoover, Parker and Davis Dams on the Lower Colorado River to Los Angeles and Southern California, there is at times insufficient transmission capacity to get that power to northern California - where much of the recent need has been.

There is also no Federal transmission line to get electricity from Glen Canyon Dam, on the Colorado River, to either southern or northern California. Power from Glen Canyon Dam can be sent to Arizona, but there

is usually insufficient transmission capacity to get electricity through Arizona to California. To do so would displace other power that is also intended for California, unless Western is able to exchange power with some other entity.

5) Hydrologic Conditions: Water is the fuel for a hydropower system. While water is an annually renewable fuel, its availability varies considerably from year to year.

In California, water supply forecast is now about 40 percent below normal. As a result, Reclamation's hydro generation is below average. Reclamation's CVP power facilities, in an average summer, generates 5,000 gigawatt hours(GWh). This summer, however, due to low river and reservoir levels, CVP facilities are expected to generate only about 4,100 GWh - which is 18% below average.

In the Pacific Northwest, the runoff forecast is for a near record drought. While the average annual flow of the Columbia River at the Dalles is about 106 million acre feet, flows this year will be only half that amount.

6) California/Northwest Exchange: Historically, the Pacific Northwest and California have exchanged power during their respective high demand seasons - winter in the Pacific Northwest and summer in California. In the summer, when the Northwest's demand is lower, the Pacific Northwest exports power to California - during its high demand season. Then, in winter, when California's demand is - on average -- lower, California exports power to the northwest - where the winter months are colder and demand is higher. This relationship has served both regions well.

Unfortunately, it is not working that way this year. As we saw this past winter, California was not able to export power to the north, as they were not able to meet their own winter needs. In fact, California found itself in need of imported power (at a time when they usually export it). This meant that Bonneville, which usually depends upon California's imports, did not have imported power available to meet its customers' load. In response, Bonneville needed to increase the output of the facilities of the Federal Columbia River Power System (FCRPS), as well as buy power on the spot market. It also meant that there was significant draw down of the reservoirs in the FCRPS. This year, with the dry weather, there is little prospect that these reservoirs will be able to refill this summer. To California, this means that the Pacific Northwest may not be able to export power during the upcoming summer months. Bonneville will continue to exchange energy whenever possible to help California with peaking problems while providing the Northwest with much needed energy.

7) Environmental and Trustee Considerations: Reclamation must also operate its projects consistent with environmental laws, such as the Endangered Species Act, and with Indian trust property responsibilities and Indian fishing rights. In any hydropower system there can be significant fluctuations in flow that may have impacts on the environment and recreation. Since most Reclamation hydropower facilities are located on rivers inhabited by threatened and endangered fish species, operations are constrained to ensure that these fish and their habitat are not jeopardized by adverse flow schedules or pulsed flows. We are coordinating with National Marine Fisheries Service and the U.S. Fish and Wildlife Service to identify opportunities to provide additional assistance for power generation that will not adversely affect these fishery resources.

System Reliability: Mr. Chairman, one of the significant benefits of hydropower, in general, and Reclamation's system, in particular, is the flexibility it affords. Hydro generation can be ramped up or down very quickly to respond to changes in demand and to the needs of the regional transmission system to remain stable. (A caveat here is that rapid changes may have detrimental fish and wildlife impacts.) Because of the size of Reclamation's system, along with its capacity and the large number and diversity of

units available, Reclamation serves as a mainstay for ensuring the reliability of the Western Interconnected System. In the event of a WSCC system emergency, Reclamation hydro power can be brought on-line quickly to meet system emergency demands. Reclamation hydro power also provides voltage control, load following, spinning reserves, and black start capability- all of which provide critical, much-needed stability to the western power grid.

Current Activities in Response to Power Crisis: Reclamation works closely with Bonneville, Western, the WSCC and the California Independent System Operator (ISO) to provide whatever assistance it can to California.

1) **Adjustments to Increase "Peaking Power":** Reclamation continues to work on flexible power generation schedules to support the needs of the western power grid. Western and Bonneville, on behalf of the California ISO, routinely ask Reclamation to rearrange its power generation schedule to help with the morning and afternoon peaks. In many cases, Reclamation has asked its project pumping customers to shift the timing of their deliveries to off-peak times to make more peaking power available to the market. At Grand Coulee Dam in eastern Washington, we have been able to shift more than 300 megawatts of pumping load to off peak times - making it available to Bonneville for peaking purposes. This summer in the CVP, Reclamation anticipates that significant project pumping loads can be shifted to off-peaking, making that power available to Western to help meet the demand for peaking power in California.

2) **Conservation:** Reclamation continues to maximize power production and minimize consumption to reduce projects needs and make power available. We have also facilitated the purchase of water that would otherwise need to be pumped or diverted upstream of the generators. This makes both more water available for generation and makes some "project use power" available to the market.

3) **Maintenance Schedules:** In California, Reclamation has complied with the "No Touch Day" requirement and "Warning" market notices. These notices have been in effect for all 105 days of 2001. Generator maintenance or maintenance of communications or protective systems is not be performed if a "No Touch Day" is in effect. Over the past year, Reclamation has worked very closely with Bonneville and Western to coordinate scheduled maintenance activities to maximize the number of facilities on line to respond to the energy needs of the western United States. In many instances scheduled maintenance that requires outages, has been delayed or rescheduled to accommodate system needs. Where maintenance cannot be delayed, Reclamation has resorted to double shifting at some facilities, and a greater use of overtime, to shorten the time that facilities will be out of service.

4) **Responses to Stage 3 Emergencies:** While Reclamation's ability to generate power sometimes is limited by the factors identified above, we have been able to respond to requests from Western and Bonneville on behalf of the California ISO during many of the recent emergencies to provide additional power to California. Within the CVP, for example, Reclamation placed all its CVP generating units into production for the duration of the emergency. In the Pacific Northwest, Reclamation, in consultation with Bonneville, reshaped the water releases to assist California during Stage 3 events. In addition, the following chart indicates the specific increases from Hoover and Glen Canyon dams as of April 19, 2001.

Facility	Date	Emergency Stage	Length of Time	Generation Increase
Hoover Dam	12/7/2000	Stage 3	2 hours	800 to 1,500 MW
Hoover Dam	1/11/2001	Stage 3	15 hours	300 to 1,200 MW
Hoover Dam	1/12/2001	Stage 3	3 hours	300 to 500 MW
Hoover Dam	1/16 - 2/16	Stage 3		Initiated double Peaking schedule
Glen Canyon Dam	9/18/2000	Stage 3	4 hours	523 to 655 MW
Glen Canyon	2/15/2001	Stage 3	5 hours	496 to 784 MW
Glen Canyon	3/19/2001	Stage 3	10 hours	420 to 791 MW
Glen Canyon	3/20/2001	Stage 3	5 hours	575 to 826 MW

Future Activities and Opportunities: As stated above, Reclamation has over the past 25 years undertaken an aggressive uprating and efficiency improvement program, which has significantly expanded the capacity of our hydropower system. While most of the significant benefits have already been realized, Reclamation has identified and will continue to explore additional opportunities to further expand our capacity and efficiency.

1) Increase Efficiency and Reliability: In partnership with Bonneville, Western and some of our power customers, Reclamation is working to replace the turbine runner blades in some of our facilities. The on-going runner replacement work at Grand Coulee, for example, can increase the efficiency of the facility and will result in 45-50 MW of additional energy at the facility. Reclamation is exploring the feasibility of other investments such as a similar effort at Shasta Dam in California which could result in an additional 51 MW of power. We estimate that by doing this at other Reclamation facilities, Reclamation could realize an additional gain of as much as 350 MW over the next 5 to 10 years.

2) Additional Uprates and Rewinds: While most of the significant increases in capacity have already been realized by our long standing uprating and rewind efforts, we can see that over the next 5 to 10 years, an additional 200 MW gain is possible across all of Reclamation's power system.

3) Increased Focus on Power Facility Reliability - Reclamation hydropower plants are an average of 44 years old. Given this aging infrastructure, Reclamation is placing an increasing emphasis on the reliability of our plants in our operation and maintenance activities. Additionally, we are exploring the possibility of Reliability Centered Maintenance and Life Extensions in order to assure continued reliability of our plants.

Conclusion

In summary, Mr. Chairman, Reclamation's hydropower projects play a significant role in addressing California's power needs - both in terms of supply and in terms of maintaining the stability of the system. In the summer of 2000, and so far in 2001, the below normal water supplies have limited and will continue to limit our ability to generate hydropower.

This concludes my testimony. I would be glad to answer any questions.

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Witness Statement

STATEMENT OF
MICHEAL McINNES, TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.,
Representing
COLORADO RIVER ENERGY DISTRIBUTORS ASSOCIATION (CREDA)
Regarding
Maximizing Power Generation at Federal Facilities
Before the
SUBCOMMITTEE ON WATER AND POWER
Of the
COMMITTEE ON RESOURCES
Of the
U.S. HOUSE OF REPRESENTATIVES
April 26, 2001

Mr. Chairman, members of the Committee, I am Micheal McInnes, Sr. Vice President/Deputy General Manager of Tri-State Generation and Transmission Association, Inc., and a member of the Colorado River Energy Distributors Association (CREDA). I am pleased to have been asked to talk with you today regarding Glen Canyon Dam operations, marketing of the Colorado River Storage Project (CRSP) resources, and recommendations to improve electric system conditions in the West.

Tri-State is a consumer-owned electric generation and transmission cooperative located in the states of Colorado, New Mexico, Wyoming and Nebraska. Tri-State is a wholesale provider of resources to 44 distribution cooperatives, that in turn serve approximately 487,000 consumer meters representing a population of about 1 million people. A portion of Tri-State's resource base is comprised of generation from the CRSP, of which Glen Canyon is the largest generation resource. Tri-State also owns coal and gas-fired generation resources, as well as 5,348 miles of transmission resources.

Tri-State is also the largest member of CREDA, which is a non-profit organization representing consumer-owned electric systems that purchase federal hydropower and resources of the CRSP. CREDA was established in 1978, and serves as the "voice" of CRSP contractor members in dealing with CRSP resource availability and affordability issues. CREDA represents its members in dealing with the Bureau of Reclamation (USBR) as the generating agency of the CRSP and the Western Area Power Administration (WAPA) as the marketing agency of the CRSP. CREDA members are all non-profit organizations, serving nearly 3 million electric consumers in the six western states of Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming. CREDA members purchase over 85% of the CRSP power resource.

Tri-State and other CREDA members (contractors) have entered into long-term, cost-based contracts with WAPA for purchase of federal hydropower resources of the CRSP. These contracts provide for frequent rate adjustments in order to ensure repayment of the federal investment in the CRSP. Our purpose today is to provide some background on the operational changes at Glen Canyon Dam, to discuss the marketing area of the CRSP, and to provide suggestions that may assist market conditions in the Western United States.

The CRSP was authorized in the Colorado River Storage Project Act of 1956 (P.L. 485, 84th Cong., 70 Stat. 50), as a multi-purpose federal project that provides flood control; water storage for irrigation, municipal and industrial purposes; recreation and environmental mitigation and protection, in addition to the generation of electricity. This testimony will focus on the major power generation features of the CRSP, although there are several irrigation projects included in the Project. The CRSP power features include five dams and associated generators, substations, and transmission lines. Detailed descriptions of the CRSP facilities were provided in testimony provided to this Committee on March 7, 2001.

CRSP MARKETING AREA

Federal hydropower is marketed pursuant to law and marketing plans that have been developed through a public process. From the time CRSP resources were initially marketed, the allocations remained constant until September 1, 1989. In 1979, WAPA began its process of determining the amount of capacity and energy it would have available after 1989, and the criteria by which it would be allocated to customers (51 FR 4844, 2/7/86). This process resulted in the "post-89 contracts".

As part of this process, it was determined that CRSP resources were to be marketed pursuant to preference (section 9(c) of the Reclamation Act of 1939). Also through this process, it was determined that the geographic area into which CRSP resources would be marketed on a firm basis "did not include any portion of California...". Based on discussion contained in the marketing criteria, it was determined that the loads and interest level in California did not warrant expanding the marketing area into that state. In addition, existing contractors had made application for the entire amount of generation produced by the CRSP. There was an environmental impact statement (EIS) performed on the post-89 marketing criteria. This criteria was again reviewed in 1998, when extensions to the long-term firm contracts were considered. As part of this process, it was determined that 7 percent of the existing CRSP marketable resource would be held for allocation to Native American and new customers, beginning in 2004. (64 FR 34414, 6/25/99). Also as part of this process, there was a public inquiry initiated by the Department of Energy, which was intended to assess whether changes to federal marketing criteria should be made, given the onset of deregulation. (63 FR 66166, 12/1/98). Ultimately, DOE found no change was required of WAPA's marketing criteria, which reaffirmed the concept that the cost-based rates and marketing criteria associated with the CRSP are still relevant, possibly even more so, in a deregulated environment. Current customers have committed to purchase the entire output of the CRSP under long-term contract, through 2024. These contracts ensure repayment of the federal investment, with interest, as well as provide a level of resource certainty, which is critical in current market conditions in the West.

GLEN CANYON DAM

Glen Canyon Dam is located near Page, Arizona and is by far the largest of the CRSP projects. Glen Canyon Dam began operation in 1964. The water stored behind the dam is the key to full development by the Upper Colorado River Basin states of their Colorado River Compact share of Colorado River water. The Glen Canyon power plant consists of eight generators for a total of about 1300 MW, which is more than 70% of total CRSP generation. The ability of the USBR to generate, and WAPA to market, the total generating capability of Glen Canyon Dam has been impacted over a period of many years, by various processes and laws.

In 1978 the USBR began evaluating the possibility of upgrading the eight generating units at Glen Canyon. This was possible primarily due to design characteristics of the generators and improved insulating materials. This upgrade was completed, and the generation was increased from about 1000 MW to 1300 MW. To fully utilize the unit upgrades would have required the maximum water release at Glen Canyon to

be increased from 31,500 cubic feet per second (cfs) to about 33,200 cfs. The USBR also studied the possibility of adding new units on the outlet works to provide additional peaking capacity. The possibility of increasing maximum releases from Glen Canyon raised concerns with downstream users. After discussion with stakeholders, the Secretary of the Interior initiated the first phase of the Glen Canyon Environmental Studies.

Following many years of study, in July 1989, the Secretary announced the start of an environmental impact statement (EIS) on the operation of the Glen Canyon Dam, although no specific Federal action was identified for study. Meetings were held during 1990 to seek input into alternatives that should be considered, and the USBR determined the nine alternatives (including a "no action" alternative) to be studied. Meanwhile, in 1992, the Grand Canyon Protection Act (106 Stat. 4672) was signed into law. Section 1804 of the Act required completion of the EIS within two years. The EIS was completed and the Record of Decision (ROD) signed in October 1996.

The result of 15 years of studies and processes is that Glen Canyon operations were changed to reflect a revised flow regime; approximately one-third of the generating capacity was lost (456 MW). The EIS identified the annual financial cost to CRSP power contractors at \$89.1 million per year. But this was in 1991 dollars and would probably be 3-4 times greater today, given energy market conditions. The cost of the Glen Canyon EIS was approximately \$104 million, and was funded by power revenues collected from the CRSP contractors. To date, over \$134 million has been spent on Glen studies, and funded by CRSP power revenues. This figure does NOT include the nearly \$8 million per year spent for the Adaptive Management Program.

In April of 2000, it was determined that due to hydrologic conditions and requirements of a 1994 Fish & Wildlife Service biological opinion, a low flow summer experiment would be undertaken. The experiment included high spike flows in May and September, with low flat flows (8,000 cfs) all summer. The purpose was to gain information regarding endangered humpback chub conditions. The low, flat flows and hydrology, along with western energy market prices had a severe impact on power generation, requiring CRSP customers, and WAPA, to purchase replacement power to meet their resource needs.

The cost incurred by WAPA (and to be recovered from CRSP contractors) for this replacement power was \$55 million, just for the summer. Twenty-four million dollars of this total is attributed to the low steady flow environmental experiment; the remainder is attributed to wholesale energy market prices. The cost of the experiment alone was over \$3.5 million, funded by CRSP power revenues. These figures do NOT include additional costs to CRSP contractors that had to purchase or supplement their CRSP resource with purchases from the energy market. The impact on Tri-State was approximately \$22 million.

GLEN CANYON ADAPTIVE MANAGEMENT PROGRAM

CREDA participates on the Federal Advisory Committee charged with making recommendations to the Secretary of the Interior as to operations of Glen Canyon Dam pursuant to the Record of Decision and underlying laws. Funding for the program (Adaptive Management Program) is through CRSP power revenues. Proposed funding for next year's program will exceed \$10 million. On October 27, 2000, President Clinton signed the FY 2001 Energy and Water Development Appropriations Act, which included language (section 204) capping the amount of CRSP power revenues that can be used for the Adaptive Management Program, at \$7,850,000, indexed for inflation. Without this cap, the annual program would have continued to increase, with power revenues being the sole funding source. Now, the program will need to seek appropriated dollars in order to maintain the increased funding levels. CREDA supports other sources of funding for this program. CREDA also participates on the Technical Work Group through consultants, to ensure that good science and efforts to increase power production are considered.

CRSP contractors have paid, and continue to pay, the majority of costs at Glen Canyon, even while the Glen capacity has been depleted by about one-third. There are significant operating constraints on the remaining available capability, as required by the 1996 ROD. Recognizing the instantaneous nature of power generation as well as constraints contained within the ROD, the USBR and WAPA should be directed to operate the facilities up to the maximum parameters allowed under the ROD. Maximum fluctuations (down to minimum nighttime flows of 5,000 cfs) should be permitted, which would allow the generation from Glen to follow load more accurately. There have been situations in the past where minimum flows were held at 8,000 cfs in an attempt to placate certain resource stakeholders, who believed there would be negative downstream effects. Subsequent analysis has disproved that assumption. Additional generating resource should be made available to the CRSP contractors within operating restrictions.

MARKET ISSUE MITIGATION

I. GLEN CANYON: The western energy market "price crisis" is affecting all CRSP contractors and WAPA. Reduced operational levels at CRSP facilities and environmental constraints have caused WAPA and the contractors to be out "in the market" having to purchase resources to meet contractual obligations and to serve load. This is the same energy market from which California entities are buying. Unlike merchant generating facilities that are constructed and operated to make a profit for their for-profit owners and shareholders, federal hydropower facilities cannot be operated for for-profit purposes. Their cost-based rates include many cost components not attributable to merchant plants, and they are subject to operating restrictions which are generally more stringent than those placed on merchant facilities.

The CRSP resources are marketed by WAPA pursuant to law and marketing plans within a legally defined marketing area, on a firm basis to preference entities. And yet, by Presidential and DOE directives issued during 2000, WAPA was called upon on September 18, 2000 and again on February 15, 2001, to "ramp up" Glen Canyon to assist the California Independent System Operator avoid blackouts. Although sympathetic to the energy situation in California, CREDA has some serious concerns with a requirement that CRSP resources be made available to California. CREDA's concerns are operational, legal and financial. Current hydrologic conditions in the Colorado Basin indicate the potential for another dry summer. Water released this spring may not be recoverable when it is so desperately needed to meet summer peak demands. CRSP resources are committed under long-term, cost-based contracts with a legally defined group of contractors, who are located within a legally established geographic marketing area. From a financial standpoint, the CRSP contractors are the "guarantors" of the federal investment in the CRSP. Given the current financial situation of California power purchasers, CREDA believes the CRSP contractors must be provided protection from financial impacts which may result from Presidential or Administration directives which require WAPA to sell into the California market.

Existing operating parameters in the ROD provide a limited range of operating flexibility. The ROD contains maximum and minimum flow levels, upramp and downramp limits, as well as daily fluctuation limits. However, even within these constraints, the USBR and WAPA should be encouraged to maximize power production to the fullest extent possible. They should be directed to temporarily suspend any experimentation or research that would reduce power output. Research through the adaptive management program should center on ways to increase generation without significantly upsetting the balance of downstream resources, consistent with the CRSP Act's mandate to "maximize power production". Such research could also examine the potential for incremental generation enhancements.

II. STAKEHOLDER INVOLVEMENT: Electric system reliability, particularly during periods of limited resource availability, is critical to ensure delivery of electricity to the public. Decisions regarding system

enhancements, particularly to the federal generating and transmission resources, must take into account both reliability and economic concerns. A good example of how this type of balance has been achieved is through a contractual arrangement among CREDA, WAPA and the USBR.

The common thread among CREDA members is that each one is a party to a CRSP firm power contract with the federal government. From CREDA's inception in 1978, the issue of CRSP rate development and application has been key to its mission. For many years, CREDA's only recourse when it disputed inclusion of costs or rate methodology was to file at protest at the Federal Energy Regulatory Commission (FERC). FERC has authority over federal power marketing administration rates, but only to a very limited extent. For several years, CREDA explored with the federal agencies mutually agreeable means of addressing rate issues. In 1983, the USBR and WAPA entered into an agreement that contained certain principles regarding power repayment study issues, rate issues and repayment issues. In addition, the agencies agreed to hold informal meetings with customers prior to proceeding with a formal rate process. Certainly, this was a step in the right direction.

During the years between the "1983 Agreement" and 1992, CREDA continued to work with the agencies to more fully develop what is informally known as the "1992 Work Program Review" process (Letter Agreement No. 92-SLC-0208). On September 24, 1992, WAPA, the USBR and CREDA executed a letter agreement that formally implemented procedures for customer review of CRSP costs. This agreement was codified in an amendment to the CRSP firm power contracts with each CRSP contractor. Under the agreement, CREDA is provided, semi-annually, detailed CRSP cost information from both agencies. There are procedures by which CREDA may challenge costs, as well as procedures by which disputes may be settled. Attempts to resolve disputes begin with negotiation, with the ultimate step being resolution under the Administrative Dispute Resolution Act of 1990 (P.L. No. 101-552, 104 Stat.2736), which include arbitration. The federal agencies also agreed to cooperate with CREDA to implement alternative dispute resolution procedures in any proceeding before FERC.

The 1992 Agreement sets out specific timetables and describes the nature of the cost information to be provided to CREDA. CREDA retains the ability to seek resolution in a Court of Law, but has the obligation to first proceed through the remedies provided in the 1992 Agreement. The benefits of this arrangement accrue to both the federal agencies and to CREDA members. Members have the ability to scrutinize work plan information, including proposed capital improvements and replacements and operation and maintenance expenses, before the plans become "cast in stone". Many CREDA members own and operate generation and transmission systems; they are able to bring expertise and insight to the agencies regarding reliability improvements and alternative construction options. This has proved to be a beneficial relationship and has resulted in cost savings to the CRSP customers. The agencies benefit because the parties to the Agreement attempt to resolve disputed issues prior to the instigation of formal rate processes. In fact, since implementation of the 1992 Agreement, CREDA has not litigated a CRSP rate case before FERC. Recently, following extensive work on the part of all parties during 1999-2000, WAPA was able to defer a proposed rate adjustment in July of 2000 (saving contractors approximately \$12 million).

The 1992 Agreement was unique at the time it was executed. It continues to be a good example of constructive stakeholder involvement with federal agencies, particularly when the stakeholders are paying the costs of the federal programs at issue.

III. TRI-STATE RECOMMENDATIONS: Tri-State operates over 1,650 megawatts of generation and more than 5,000 miles of high voltage transmission lines in its own behalf and for others as well as holding ownership interests in other generation and transmission facilities. As a cooperative, it is directed by its 44 member electric distribution cooperatives, representing nearly 500,000 consumers and a population of

nearly 1 million. A cost-based, consumer-owned utility, it is dedicated to providing sufficient supplies and reliable energy at an affordable cost.

As a member-owned utility, Tri-State has operated under cost-based rates and rate stability in an increasingly volatile market, particularly in the western United States, where consumer concerns over supplies and costs are steadily increasing.

The success of consumer-owned utilities that enjoy stable, affordable rates can be attributed to:

1. A mix of generation and transmission facilities and resources including hydropower as well as coal-fired and natural gas-fired plants.
2. Long-range forecasting, planning and construction work programs, as opposed to short-term market approaches.
3. A pragmatic approach to electricity supply and demand, where diversity of load and a sensible approach to providing reserves has created benefits more compelling than choice.
4. And most importantly, owner/stakeholder involvement and control.

CONCLUSIONS AND RECOMMENDATIONS

*Federal hydropower facility operating agencies should be directed to maximize production from those facilities, recognizing existing legal constraints. Research or experimentation that would reduce generation output should be temporarily suspended during regional power crisis situations. Research to increase generating capacity from these facilities, without significantly upsetting the downstream resource balance, should be undertaken immediately.

*CRSP resources are marketed under long-term, cost based contracts, within a defined geographic scope and guarantee repayment of the federal investment in power facilities as well as a very sizeable investment in irrigation projects. CRSP contractors must not be responsible for operational, legal or financial impacts associated with the federal government's assistance to California.

*Federal agencies should be encouraged to implement stakeholder involvement processes, particularly when the stakeholders are the funding source for federal programs.

Thank you for the opportunity to provide this information and appear before the Subcommittee today.

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Committee on Resources, Subcommittee on Water & Power

<http://resourcescommittee.house.gov/water> - - Rep. Ken Calvert, Chairman
U.S. House of Representatives, Washington, D.C. 20515-6204 - - (202) 225-8331

Witness Statement

TESTIMONY PREPARED FOR
HOUSE COMMITTEE ON RESOURCES
MAXIMIZING POWER GENERATION AT FEDERAL FACILITIES

Prepared by:

David L. Wegner
Board of Directors
Glen Canyon Institute
April 26, 2001

Testimony Prepared for
House Committee on Resources

David L. Wegner
Glen Canyon Institute
April 26, 2001

INTRODUCTION

Good Afternoon. My name is David Wegner and I live in Durango, CO near the Animas River, a tributary to the San Juan and the Colorado Rivers. I have been asked to provide you with my perspective on the importance of the environmental and other factors in the management of the Federal hydropower facilities in the West with specific reference to the Colorado River basin. Thank you for this opportunity. My perspective is likely not to be the same as the others who have testified before you today.

I am a scientist with over thirty years of experience and studies on river dynamics and environmental impacts. My background on this issue began on the Colorado River system in 1975 as a biologist on the Central Utah Project. During my career with the Bureau of Reclamation (1976-1996) I have had the opportunity to study the Colorado River system from the headwaters to the Sea of Cortez. Since I left the Department of the Interior in 1996 I have expanded and applied my knowledge of dam and river ecosystem relationships to the Columbia and Snake river systems, in Alaska, other rivers in the Great Basin, and internationally on rivers in Turkey, Germany, France, Russia, China, Siberia, Japan, Costa Rica and Vietnam. Many of the problems and challenges are the same.

I am here today as a representative of the Glen Canyon Institute, located in Flagstaff, AZ, and also representing the rivers and the species they support. I intend to address the specific question being asked by this Committee utilizing my expertise in the Colorado River system in combination with knowledge gained and drawn from other river systems in the West.

QUESTION BEING ADDRESSED

Does the current short-term electrical situation in California and potentially in the Western United States warrant modifying the environmental rules and regulations that have been developed for the Federal dams in the West?

BACKGROUND

The river basins of the West are controlled by multiple dams, irrigation diversions, and pumping plants. In the majority of cases, rivers with dams cannot support the historical assemblage or biological diversity of fish and wildlife species that historically were present. The largest dams in the Colorado River system are Federal and under the direct control of the Bureau of Reclamation with the hydropower being managed by Western Area Power Administration. There are over 60 Federal, State and private dams and 17 transbasin diversions that control the Colorado River plumbing system. In the Northwest, the Columbia and Snake River system is manipulated by both Federal and private dams. In the Northwest, the Corp of Engineers and the Bureau of Reclamation manage the dams while the Bonneville Power Administration manages hydropower distribution.

These water development systems were planned, approved by Congress and constructed prior to the passage of the majority of the environmental laws. The very laws that today make the United States one of the most progressive nations on the planet recognizes the importance of our river systems and the species they support. Congress has been instrumental in the development of the water and hydroelectric resources of the West and ensuring that the environmental species that depend on these rivers are considered as equal partners in the management of the federal dams and irrigation systems.

The rivers of the West are not what they used to be. This has been documented extensively in many scientific studies conducted by Federal, State, Tribal and private researchers. Today the rivers are fragmented, disjointed and severely modified from their former dynamic nature. The species that depend on these rivers provide economic benefit to the West. The Federal agencies that manage the rivers are under Congressional direction to ensure that environmental considerations are included in the management of the rivers. We are not here today to debate the value of the dams. It is scientifically documented and acknowledges that dams have seriously impacted river environments.

When the National Environmental Policy Act was signed into law, we, as an American people, recognized the importance of our environment and the species that are supported by them. With the subsequent passage of the Endangered Species Act, the Clean Water Act, Wild and Scenic Rivers Acts and other Federal legislation Congress recognized our responsibility for protecting species and their habitats. Many of the fish and wildlife species that have been recognized as endangered evolved and are dependent upon critical habitats and ecologically functional river systems.

Several examples of the evolution of environmental concerns in Western river basins are identified below. These efforts are specific examples of federally mandated actions intended to balance water and electricity management in the West and include:

Colorado River Fish Program (1980's)

Glen Canyon Environmental Studies (1982-1996)

Grand Canyon Monitoring and Research Program

Upper Basin Fish Recovery Program

San Juan River Fish Recovery Program

Flaming Gorge Dam Environmental Impact Statement

Central Utah Project Environmental Impact Statement

Central Arizona Project Environmental Impact Statement

Lower Colorado River Multi-Species Conservation Program

Northwest Power Planning Act (1980)

Mid-Snake EIS (Bureau of Reclamation)

FERC Relicensing Program for the Hells Canyon Complex (Idaho Power Company)

Lower Snake River Dams EIS (Corp of Engineers)

CALFED, San Francisco Bay-Delta Accord (2000)

Trinity River Restoration EIS (2000)

Multiple FERC relicensing efforts ongoing across the West

COLORADO RIVER SYSTEM AND THE EVOLUTION OF ENVIRONMENTAL CONCERNS

The Glen Canyon and Hoover Dams are the primary water control and electrical production facilities on the Colorado River system. In the case of Glen Canyon Dam the study of the impact of the operations of Glen Canyon Dam on the upstream and downstream environmental, recreation, economic, cultural and Native American issues began in 1973 and continues today.

1973 - Biological Opinion on the operation of Glen Canyon Dam

1982 - Secretary of the Interior James Watt initiated the Glen Canyon Environmental Studies

1987 - National Academy of Science Review #1

1989 - Judicial review of the need for an environmental impact statement on power marketing criteria for the Colorado River Storage Project dams

1989 - Secretary of the Interior Manuel Lujan initiates the Glen Canyon Dam operations EIS

1990 - National Academy of Science Review #2

1992 - Grand Canyon Protection Act (P.L.102-575)

1996 - National Academy of Science Review #3

1995 - FINAL Environmental Impact Statement on Glen Canyon Dam. Over 30,000 public comments received

1996 - Experimental Flood-Environmental Assessment at Glen Canyon Dam (First application of Adaptive Management at Glen Canyon Dam)

1996 - Record of Decision on the operations of Glen Canyon Dam

- Modified flow releases to protect endangered species
- Modified flow releases to protect cultural and public trust resources in Grand Canyon National Park and Glen Canyon National Recreation Area
- Modified flow releases to allow for power emergencies

1999 - National Academy of Sciences Review #4

2000 - Glen Canyon Institute - Draft Citizens Environmental Assessment on the decommissioning of Glen Canyon Dam

What these sequence of actions and efforts illustrate is that there has been a

clear and direct effort made through Congress, the Executive Branch of the government, the courts and the scientific community to guide the management of the Federal dams on the Colorado River system to balance and protect the environmental resources. The decisions that have resulted have gone through extensive scientific, legislative, administrative, public, tribal and judicial review and approval process.

TODAYS CHALLENGE

Today we are faced with challenges and significant questions related to the management of the hydroelectric dams in the Western United States. These dams were historically built as multipurpose dams, with irrigation and flow management as the primary goals. Hydroelectricity was a secondary goal that has evolved in many cases to be the primary driver for operations. These dams were built for development reasons with many subsidies built in to ensure that the Federal resource was used. The historic decisions on dam priorities were made in a different time, prior to the passage of many of this nations environmental laws. The subsidies of yesterday do not warrant losing the important environmental resources of today.

The challenge is finding ways to keep the western electrical system whole and functional. The obvious and easiest first place to look is the hydropower facilities. They are easy to turn on, turn off, and have historically made up the slack for meeting short-term electrical needs. In the past, the issue would have been done without public input and discussion. That quick and easy approach cannot be taken today when other opportunities have yet to be explored.

Over the years the impacts of dam construction, operation and management have been the focus of multiple scientific and administrative studies. The result has been a refinement of the operations of many of the dams in an attempt to balance the environmental affects with management goals. The list of dam impacts in published, peer-reviewed documents is extensive and available if the Committee desires.

A critical question that should be asked before any change is made in the management of the Federal dams is *Who is benefiting from the power during the emergency?* We should not be violating agreed upon environmental regulations to provide subsidized power to pump subsidized water so that wealthy corporations can manufacture subsidized products or so that corporate farms can grow uneconomical, and subsidized, crops in the desert and leave us with diminished water quality that kills more species and further degrades marginal lands and habitats.

FINDINGS

In the course of developing this testimony, several findings are important to consider.

1. The California power crisis is a short-term issue. It has been caused by:
 - a. The previous state administration not approving any new power plants.
 - b. Flawed state deregulation legislation
 - c. Seven power plants are currently under construction and another six are on the fast track approval process
2. California has not developed aggressive short-term conservation incentives.
3. The current shortage of electrical supply has developed as a result largely of a poorly developed regulatory structure. No price caps have been implemented, no financial incentive structures are in place, and as a result, the public power financial capability has been negatively impacted.
4. The Federal power managers have oversubscribed its contracts. As an example, Bonneville Power Administration has approximately 12,000 megawatts of contract responsibility in place and has the physical resources to supply only 9,000 megawatts. This requires BPA to purchase an additional 3,000 megawatts of energy on the open market at prices that are often from 4 to 10 times the cost of the federally produced power. The result, Federal financial shortfalls; the solution, don't oversubscribe capacity to produce.
5. Flow management regulations in Western River system Federal dams have gone through extensive legislative, scientific, administrative and legal review
6. Environmental regulations at Federal dams are necessary to balance ecosystem and social needs. These regulations have already been implemented without significant impact to Federal power contracts.
7. Critical Tribal resources will likely be affected by rolling back of environmental regulations on Western rivers.
8. Hydropower will continue to shrink in the overall energy production program due to diminishing capacity of the reservoirs, as sediment replaces the water and mandated water allocations restrict delivery ability.

RECOMMENDATIONS

The following recommendations are provided for consideration of this Committee:

1. Closing the gap between electrical supply and demand through price mechanisms and conservation will go a long ways to alleviate the current electrical squeeze.
2. A need exists to develop clear criteria and priorities that describe the circumstances for declaring a power emergency and actions that Western Area Power and Bonneville Power Administrations would need to take prior to such a declaration.
3. Develop immediately aggressive conservation actions to reduce the power demand. This would include

many of the same activities were implemented during the 1970's energy crisis:

- a. Turn off outdoor advertising signs and lights in public and private buildings when they are not being used.
 - b. Develop irrigation power buy back programs with farmers
 - c. Do not develop or operate Federal projects that use more electricity than they produce, such as the proposed Animas La Plata project.
 - d. Evaluate every Direct Service Industry to see if Demand Side Management or other conservation activities could reduce their power requirements. Examples would be the current temporary shut down of several aluminum smelters in the Northwest
 - e. Aggressively develop a campaign to educate the public on conservation measures
4. Retire marginal agricultural lands that are growing subsidized crops that are dependent upon subsidized power for pumping water.
 5. Maintain higher reservoir levels at Reservoir Mead by drawing down Reservoir Powell. This has the benefit of minimizing evaporation loss at Powell and maximizing power production that can go directly into the California market from Hoover Dam. This would reduce transmission losses and maximize operational efficiency.
 6. The Glen Canyon Institute urges a measured, scientific program of reviewing dam management at all mainstem facilities and the development of ecological sustainable management of our rivers. This would include a complete economic evaluation of dams, identifying all subsidies and long-term restoration and maintenance costs necessary to provide a complete evaluation of dam impacts. Where scientifically and publicly supported, dam decommissioning and restoration of river systems should be implemented. In the case of the Colorado River, meeting electrical needs in California might be better met by focusing on maximizing Hoover Dam operations rather than utilizing Glen Canyon Dam.

SUMMARY

The rivers of the Western United States evolved over millions of years and support species and ecosystems that are economically important. The regional economics of the West are directly and indirectly linked to our river systems, whether it be for irrigation, water supply, salmon and other native species, recreation or hydropower. Native Americans, local communities and regions, and millions of people across the country and the world are dependent upon Congress providing clear and honest guidance in protecting our environmental resources for now and the future.

Development of the West has resulted in river systems that are constrained and unable to sustain environmental and economically important living resources without the regulations that have been imposed on the Federal dams and restoring ecological integrity. The long-term ecological sustainability for many of our rivers and the species that they support are at significant risk if the current regulations are ignored or administratively rolled back.

The current electrical situation in the West is one that has occurred because of poor planning, ill-planned and implemented deregulation actions in California, and the frenzy of private power interests who are poised to make considerable profit at the expense of the environmental resources.

The financial integrity of the Federal power agencies can be replenished as the electrical system becomes whole again. This will likely occur soon as additional power plants come on-line within the next twelve months. The damage done to the rivers and the environmental resources during the electrical emergency cannot be replenished or brought back. The rivers and the species that they support should not be the ones to pay. Congress and the American public have, since 1970, consistently shown that the environmental resources should be considered equally with water and power. This is not a time or a place to violate the trust that the American public has put in its lawmakers and the responsibility that we all have to the future. I hope you can find the strength to do the right thing and fully explore all options to solving the electrical concerns before further compromising our rivers. Thank you.

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Committee on Resources, Subcommittee on Water & Power

<http://resourcescommittee.house.gov/water> - - Rep. Ken Calvert, Chairman
U.S. House of Representatives, Washington, D.C. 20515-6204 - - (202) 225-8331

Witness Statement

Statement of
Southwest Rivers, Grand Canyon Trust, and Grand Canyon River Guides
Regarding

The importance of considering environmental and other factors in the management of Federal hydropower
facilities

Before the
Subcommittee on Water and Power
Committee on Resources
U.S. House of Representatives

Statement by
Rick Johnson
Executive Director for Science
Southwest Rivers
26 April 2001

Mr. Chairman, members of the Committee, my name is Rick Johnson and I am the Executive Director for Science for Southwest Rivers, a non-profit conservation organization dedicated to the protection and restoration of the rivers in the Colorado River watershed. I represent environmental concerns for the Glen Canyon Dam Adaptive Management Program, where I serve as a member of the Adaptive Management Work Group (a Federal Advisory Committee) and also as the Chair of the Technical Work Group. In addition to my own views, this statement also represents the views of Geoff Barnard of the Grand Canyon Trust and Andre Potochnik of Grand Canyon River Guides, both of whom also serve on the Adaptive Management Work Group.

I am delighted to have been asked to speak with you today regarding the importance of considering environmental and other factors in the management of federal hydropower facilities, especially in the Colorado River basin. My focus today will be mostly on Glen Canyon Dam because that is the system I know the best. However, these comments also apply to many other hydropower facilities.

Dam operations affect biological, cultural, and recreational resources.

The flows of the Colorado River once fluctuated widely from year to year and season to season. The power of flood flows eroded and transported a tremendous load of sand, silt, and other fine-grained sediment. Unique plants, animals, and habitats evolved in these extreme environmental conditions. However, extensive water developments have transformed the Colorado from a warm and sediment-laden river with highly variable flows to a relatively cool and clear river with stabilized flows.

These changes have had a profound effect on the ecological, cultural, and recreational resources in the river corridor. Key resources include: native ecosystems, wilderness areas, world-class whitewater rafting, blue-ribbon trout fishing, archaeological and other cultural entities such as Traditional Cultural Properties, and threatened and endangered species such as the humpback chub, Kanab ambersnail, and southwestern willow flycatcher. Dam operations have been implicated in the degradation of aquatic ecosystems through

the loss of native fish and other species, the invasion of nonnative plants and animals, and widespread beach erosion. Dam operations have also diminished whitewater recreational experiences through the narrowing of rapids and the loss of camping beaches, and resulted in the erosion of archaeological and other culturally important sites.

Because of these ecological changes, dam operations are of great concern to many Americans. The concern is heightened at Glen Canyon Dam because Grand Canyon National Park lies just 15 river miles below the dam. Grand Canyon National Park is one of the jewels of the National Park system, it is a World Heritage Site, it is considered one of the seven natural wonders of the world, and it is visited by five million people every year. The park is legally charged with protecting native biological resources and cultural resources, and it provides world-class recreational opportunities.

hydropower production needs to be balanced with resource protection.

In response to the degradation of resources by dam releases at Glen Canyon Dam, former Secretary Lujan ordered the preparation of an Environmental Impact Statement (EIS) in 1989. The EIS was completed in 1995, and the Record of Decision (ROD) was signed in 1996. The goal of selecting the preferred alternative in the ROD was to find an alternative dam operating plan that would meet statutory responsibilities and permit recovery and long-term sustainability of downstream resources while minimizing impacts to hydropower capability and flexibility.

In the midst of the EIS process, Congress enacted the Grand Canyon Protection Act of 1992 which requires that the dam be operated to *"...protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, including, but not limited to natural and cultural resources and visitor use."* In essence, the Grand Canyon Protection Act requires a balancing of benefits derived from water and power delivery with benefits to biological, cultural, and recreational resources. In addition, several other authorities have a bearing on how dams are operated, including the 'Law of the River,' the National Park Service Organic Act, the Endangered Species Act, and the National Historic Preservation Act.

An Adaptive Management Program is in place to ensure that the diverse interests of the american public are achieved.

The Glen Canyon Dam Adaptive Management Program (AMP) was an outcome of the EIS process. The establishment of the AMP was a revolutionary decision in 1996 as it implemented the relatively new concept of adaptive management and also provided for on-going input into management decisions by a diverse group of stakeholders.

Adaptive Management is a process to cope with the uncertainty in our scientific understanding of how to manage complex ecosystems. It is based on collaboration, consensus, and sound science. We believe it is the most effective way to develop appropriate management strategies to meet the interests of the American public--including biological and cultural resource protection, recreation, and hydropower production.

The Adaptive Management Work Group provides advice to the Secretary of Interior regarding the effects of dam operations on downstream resources and any needed modifications to dam operations to meet the intent of the Grand Canyon Protection Act. The Adaptive Management Program serves as a model for resource management efforts in other areas. A recent National Research Council report stated that the Adaptive Management Program for Glen Canyon Dam is a *"science-policy experiment of local, regional, national, and international importance."*

Conclusions and Recommendations.

1 There are many biological, cultural, and recreational values in addition to water delivery and hydropower production that the American public holds for the Colorado River.

2 The Glen Canyon Dam Adaptive Management Program is an outgrowth of an unprecedented amount of scientific research and public participation over the past 17 years.

3 Grand Canyon means too much to the American public to sacrifice the integrity of this working partnership between local interests and the federal government.

4 We recommend that the current operations at Glen Canyon Dam are maintained and any potential alterations be evaluated and recommended through the Adaptive Management Program.

I thank you for your attention to this very important matter and the opportunity to speak to you today. I am happy to answer any questions that you may have.

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Committee on Resources, Subcommittee on Water & Power

<http://resourcescommittee.house.gov/water> - - Rep. Ken Calvert, Chairman
U.S. House of Representatives, Washington, D.C. 20515-6204 - - (202) 225-8331

Witness Statement

Testimony of
Jim Feider
General Manager
Redding Electric Utility Department

Before the
House Water and Power Subcommittee
Hearing
On
Maximizing Power Generation at Federal Facilities

April 26, 2001
Washington, DC

Mr. Chairman and members of the Subcommittee, I appreciate the opportunity to testify on behalf of the City of Redding, California, and the Northern California Power Agency (NCPA).

As Director of the Redding Electric Utility and as an active participant in NCPA's work with the Western Area Power Administration (Western) and the Bureau of Reclamation (Bureau), I deal extensively with the components of the federal power program. Federal power from the Central Valley Project is a vital component that NCPA's not-for-profit community members rely on for reliable power at affordable prices.

The value of the Central Valley Project, also known as CVP, lies in three subjects that I will focus on today: Generation, Transmission and Organizational flexibility.

The CVP has been a vital source of generation for NCPA members, including the City of Redding. It was built to optimize the flexibility inherent in hydroelectric generation for ramping up during the peak load hours of the day. However, the actual kilowatt hours produced by the CVP fall far short of being a good match with customer needs especially during dry years. That is why Western has historically purchased so-called firming energy to better utilize the federal system and to best match customer needs. Western's utilization of its Pacific AC Intertie facilities has been key to the overall success of the federal power program.

Also key to the program has been the resource integration agreement with Pacific Gas and Electric Company (PG&E).

This arrangement was created in 1967 to eliminate the need for the Bureau to build a base-load, thermal generating station. Unfortunately, PG&E is currently attempting to unwind this longstanding contractual obligation to provide cost-based firming energy to Western through 2004. We recommend that the Subcommittee track this substantial economic threat to the federal power program.

NCPA members have been very active over the last ten years to ensure proper maintenance and upgrades to

the CVP generating facilities. We are pleased with recent progress made by the Bureau. For example, advance customer funding to upgrade three generators at Shasta Dam have resulted in increasing Shasta peaking capacity by about 50 MW. Turbine replacements allowing further power production enhancements are underway at Shasta. NCPA believes that turbine replacements at New Melones, Carr and Spring Creek Power Plants also have merit. We ask the Subcommittee to support acceleration of these potential upgrades.

With regard to reoperation of the Trinity River, we do not believe the alternative selected by former Secretary of Interior Babbitt in his December 19, 2000 Record of Decision (ROD) represents a balance of competing resource needs in California. In light of the ongoing energy crisis in California and along with growing concerns over the adequacy of our water supply, we do not support the substantial increase of water releases down the Trinity River. We are astounded that the ROD would be implemented during constant threats of rolling blackouts especially given that the fisheries on the Trinity River have recently improved.

NCPA definitely supports stepping up further fishery improvements such as mechanical work in the Trinity River bed to improve fish habitat, and we may support some additional water flow as we submitted during the public process.

We urge the Subcommittee to support a more balanced decision-making process on any future Trinity decision.

With regard to transmission, NCPA would like to see the federal government build upon the success story of the California Oregon Transmission Project. This 340-mile, 500kV Intertie was completed in 1993 as part of a joint effort between Western and 20 public power utilities. Western's lead role in this project, where 180 miles of existing federal lines were upgraded, was in large part the reason for its success.

Western has congressional authority to further enhance the Pacific Intertie system and could facilitate completion of Path 15 improvements B the transmission bottleneck between Northern and Southern California. NCPA believes that with an immediate infusion of federal funding that Path 15 restrictions could be fixed in less than two years. The most important critical path item is to complete biological surveys right now during the spring blooming season. We recommend that the Secretary of Energy be requested to reprogram current year funds immediately for this purpose. In addition to supporting Western's role as lead agency, we would like to see Western proceed with work on the design and land acquisition activities for this project. It is important to note that any federal funding for this effort should be reimbursed back to the federal government through user fees or converted transmission rights as deemed appropriate for the benefit of the federal power program.

Mr. Chairman and subcommittee members, California is in a serious crisis. The federal power system is a vital part of California's energy picture. Both the Bureau and Western are to be commended for their daily efforts to optimize generation and transmission assets not only in partnership with their customers, like Redding, but also for close coordination with the California Independent System Operator.

As a final point, there is a need for agencies, like the Bureau and Western, to have considerable flexibility in times of crises. Federal agencies, which operate significant real power facilities in real time, need more flexibility to fund and staff their organizations to meet constantly changing circumstances. NCPA recommends that Western and the Bureau be given more authority to adjust staffing levels and alternative funding mechanisms when supported by those paying the bills. Any increased expenditures would not be borne by the taxpayer, but rather through Western's customers.

I thank you for the opportunity to testify and would be eager to answer any questions.

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Committee on Resources, Subcommittee on Water & Power

<http://resourcescommittee.house.gov/water> - - Rep. Ken Calvert, Chairman
U.S. House of Representatives, Washington, D.C. 20515-6204 - - (202) 225-8331

Witness Statement

EAST COLUMBIA BASIN IRRIGATION DISTRICT

55 North 8th OTHELLO, WASHINGTON 99344 Phone (509) 488-9671

P.O. Box E Fax (509) 488-6433

Testimony of Richard L. Erickson, Secretary-Manager
before the

Subcommittee on Water and Power

Committee on Resources

United States House of Representatives

Hearing on Maximizing Power Generation at Federal Facilities

April 26, 2001

"Bonneville Power Administration's Voluntary

Energy Load Reduction Program -

Columbia Basin Project, Washington"

EAST COLUMBIA BASIN IRRIGATION DISTRICT

55 North 8th OTHELLO, WASHINGTON 99344 Phone (509) 488-9671

P.O. Box E Fax (509) 488-6433

April 26, 2001

United States House of Representatives

Committee on Resources

Subcommittee on Water and Power

1522 Longworth House Office Building

Washington, D.C. 20515

Honorable Members of the Subcommittee on Water and Power:

Thank you for the invitation to provide information to the Subcommittee about the opportunities and challenges of Bonneville Power Administration's Voluntary Energy Load Reduction Program on the Columbia Basin Project. The Columbia Basin Project, constructed by the United States Bureau of Reclamation and now primarily operated by the East, Quincy and South Columbia Basin Irrigation Districts presently provides irrigation water to approximately 640,000 acres of farmland. This irrigation is accomplished by diverting, at Grand Coulee Dam, approximately 3% of the Columbia's flow. The Project is authorized by Congress to ultimately irrigate 1,095,000 acres.

The first inkling of this energy load reduction program came in a January 31st phone call from Bonneville to the CBP Irrigation Districts' management asking if there would be any possibility for the Districts to make operational changes to bring about reduced diversions from the Columbia River at Grand Coulee Dam for the 2001 irrigation season. BPA's stated purpose in this inquiry was to develop strategies to

respond to the developing energy and drought emergencies in the Pacific Northwest. The Districts were unable to offer much in the way of an encouraging response to this initial BPA request because the CBP's extensive network of reservoirs and canals is operated in direct response to irrigation delivery orders placed by individual farmers. In other words Reclamation and the Districts only put into the canals what the farmers ask for. Any operational tweaking of the system by the Bureau of Reclamation or the Districts would be truly miniscule in terms of Columbia River flows. It was suggested to BPA that the only way to reduce CBP diversions would be to reduce water use by individual farmers. Since the CBP is already very water efficient, both on-farm and operationally, such a reduction could only come about by idling acres. That initial discussion also included a recognition that the present and prolonged downturn in crop values could possibly make the temporary idling of some acres a serious consideration for some farmers.

Shortly thereafter BPA asked the three Districts' Boards of Directors to authorize discussions with BPA and Reclamation to attempt to develop a voluntary CBP land fallowing program that would result in an energy load reduction of irrigation pumping at Grand Coulee Dam plus increased hydropower generation at both Grand Coulee and Chief Joseph Dams. Prior to responding to this overture by BPA the three Boards directed their attorneys and management to research any potential adverse impacts of such a program to the balance and inter-relationships of CBP reservoirs and canals, to CBP water rights, to CBP repayment contracts between Reclamation and the Districts and also possible inadvertent economic or social impacts to others. Among other things this research concluded that USDA's Payment-In-Kind Program in the early 1980's had idled over 70,000 CBP acres thus providing something of a model and that Washington State water laws and CBP's reclamation contracts

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April 26, 2001

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provided sufficient flexibilities during droughts. Research also estimated that effects on the balance of the irrigation system and effects on others should be dispersed if the idled acres were limited and dispersed. Based on this information the three Boards, in conjunction with their own judgement that the combination of depressed crop values and the developing power emergency presented unique circumstances for irrigation and hydropower interests to work together, authorized negotiations with BPA and Reclamation. Negotiations in earnest began on February 14th.

To understand the value and complexities of these negotiations requires some discussion of Columbia River and Columbia Basin Project plumbing. Irrigation water for the CBP is pumped at Grand Coulee Dam into Banks Lake, a lift of 280 feet normally. The present drought has increased that lift to about 370 feet. The energy for that pumping lift is generated by other water falling through the turbines at Grand Coulee. That falling water then is used for generation at Chief Joseph Dam and 9 other dams further downstream on the Columbia. An acre foot not pumped to the CBP and then also becoming available to generate at Grand Coulee and Chief Joseph Dams is equivalent to about 1 megawatt hour, not to mention the potential at the 9 lower dams. In normal times the wholesale value of that megawatt hour is \$20 or less. This year that wholesale value has, at times, ranged between \$200 and \$700. Each irrigated acre on the CBP uses 3 to 4 acre feet, equivalent to about 3 or 4 megawatt hours. Until recently, the crops grown by that irrigation exceeded \$1000 per acre in average annual value. That is not true this year or the past several years. Through the course of negotiations those numbers caused BPA to offer CBP irrigators \$330 per acre to not irrigate, equivalent to \$80 to \$110 per megawatt hour. While well below the \$1000 per acre norm, this \$330 turned out to be a good alternative for lands slated for lower valued crops this year.

To further complicate negotiations and planning you have to understand that CBP is designed for the return flows and spills from the upper two-thirds of the Project to provide the water supply for the lower one-third meaning the idled acres needed to be dispersed and balanced. Plus, the CBP canal system is the site of 7 small hydroelectric plants owned by the Districts having established power purchase contracts with Seattle City Light, Tacoma Public Utilities and Grant County PUD. In view of current wholesale energy prices, these contracts could not be shorted.

The Voluntary Energy Load Reduction Program was opened for applications by CBP irrigators on March 19th. To bring this about we had to develop contracts for the Districts to administer the program with the irrigators on behalf of BPA, also contracts between the individual irrigators and BPA, letters of consent from Reclamation to BPA plus agreements between the three canal system hydropower purchasers and BPA. Also eligibility criteria were developed to attempt to assure that participating acres would yield the energy benefit being sought by Bonneville and to enable monitoring of irrigators for contract compliance to be done in a reasonable fashion. All this was done knowing that February and March is the start of the farming season in the Columbia Basin and being late would assure no participation. Bringing this from an initial phone call to implementation in 6 weeks, considering it was being done by 2 federal agencies and 3 units of local government plus involving 3 public utilities, especially considering all the legal complexities, was done at light speed in governmental terms. However, we'll probably have to wait until October or later to definitively evaluate if it was done well, both for agriculture and hydropower.

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The bulk of the applications were received from interested farmers during the last two weeks of March and first week of April. The lateness of this time frame relative to the beginning of the growing season created lots of anxiety and frustration for farmers. In most cases the time required from the initial application by the farmer at the District offices to issuance of an approved contract by BPA was less than two weeks. All contacting was completed before the end of the fifth week following the March 19th opening of the application process.

About 670 farmers have contracted with BPA to not irrigate about 91,196 acres, or about 15% of the Project. Those 91,196 acres should yield something over 300,000 megawatt hours of electricity that otherwise would probably have to be imported from outside the region at a higher cost to BPA and its ratepayers. The participating acreage is somewhat over the initial planning goal of 75,000 acres and the original contracted goal of 83,888 acres. Also, the acreage did not disperse quite as evenly as originally intended. Neither of those factors is expected to be a major problem for the Project and could only have been better orchestrated with the luxury of more time for both planning and implementation.

The East District's Board of Directors has asked me to emphasize two messages with this testimony. The first is that this year's unique coincidence of very low crop values and an energy and drought emergency, including very high wholesale energy costs, has created a situation where agriculture and hydropower, respective rural and urban interests, have been able to help each other. Meaning some assured income in uncertain times for participating farmers and some degree of lower electric rates for thousands of northwest electric ratepayers. The second message is that these circumstances need to stay unique and rare. Water transfers from agriculture should not be seen as a routine or reliable source of energy or as a substitute for constructing additional generating capacity. In normal times irrigation water should be more valuable for producing food than electricity.

Again, thank you for this opportunity and for your consideration of this testimony.

Sincerely,

Richard L. Erickson

Secretary-Manager

Attached as additional background are copies of the following newspaper articles:

1. Tri-City Herald March 7, 2001 "BPA's buyback efforts focus on irrigation project"
2. Tri-City Herald March 14, 2001 "BPA raises water payout to farmers"
3. Tri-City Herald March 17, 2001 "Basin irrigation districts seek pact with BPA"
4. Columbia Basin Herald March 19, 2001 "Irrigators line up in Othello for BPA buyback program"
5. Spokesman-Review March 20, 2001 "Floodgates open for irrigators"
6. Tri-City Herald March 21, 2001 "Basin farmers eager to entertain BPA buyout"
7. Tri-City Herald April 17, 2001 "BPA buy-back helps farmers, may hurt others"

Also attached is a Curriculum Vitae of Richard L. Erickson and a Disclosure of East District Contracts and Grants with the Federal Government.

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